



Memorandum

April 30, 2018

To: David Morrison, United States Environmental Protection Agency Ref. No.: 11156937
Kristina Miller, United States Environmental Protection Agency
James Mitchell, United States Environmental Protection Agency
Jacob Hassan, United States Environmental Protection Agency
Robert Thiboldeau, Wisconsin Department of Health Services
John Sager, Wisconsin Department of Natural Resources
Pat Schanen, Douglas County
Kathy Ronchi, Douglas County
Dave Longsdorf, Douglas County

From: GHD/dh/11 Tel: 501-224-1926

CC: Dyron Hamlin, MS, PE, CIH; Bradley Free

Subject: Summary of Perimeter Air Monitoring Results for April 29, 2018 11:30 – April 29, 2018 23:30

The purpose of this memorandum is to provide Superior Refining Company LLC (SRC) site management and local, state and federal regulators a summary of GHD's site perimeter air monitoring activities and results at the Husky Superior Refinery conducted from April 29, 2018 11:30 CDT through April 29, 2018 23:30 CDT. This was the first shift that GHD performed site perimeter air monitoring using fixed instruments. Air monitoring activities were conducted in accordance with the Air Monitoring Plan developed in consultation with the United States Environmental Protection Agency, Wisconsin Department of Natural Resources, Wisconsin Department of Health Services, Douglas County Emergency Management Agency, and Douglas County Health and Human Services.

During this shift, GHD placed ten calibrated AreaRAE monitors at the refinery site perimeter and began continuous air quality monitoring at these fixed stations. Meter placement and maintenance was conducted by GHD with escort by SRC personnel. The AreaRAE monitors were equipped with a photo ionization detector (PID) (10.6 eV lamp) for monitoring volatile organic compounds (VOCs) and electrochemical sensors specific for carbon monoxide (CO), hydrogen sulfide (H₂S), and flammability (LEL). GHD monitored meter status and continuous air quality monitoring results via telemetry from the refinery control room and advised Husky operations staff on air quality at the selected locations so that Husky could monitor site conditions and take appropriate actions. Results were documented through data logging. Low level H₂S readings were detected above the community action levels and automatically recorded at the fence line air



monitoring locations. Held-held air monitoring equipment was deployed to investigate the low level H₂S detections. Based on these investigations, the low level H₂S detections were determined to be sensor drift and not representative of ambient air quality. Perimeter monitoring locations and status with respect to community action levels over the period 11:30 to 23:30 on April 29, 2018 are presented on Figure 1. Perimeter air monitoring results for volatile organic compounds (VOCs) and hydrogen sulfide (H₂S) over the this period are summarized on Figures 2 and 3.

The information contained in this memorandum will be considered preliminary until a final Quality Assurance/Quality Control (QA/QC) review of the data is completed. At the completion of the project, all data collected through real-time monitoring and integrated sampling analyses will be compiled, summarized, and reported to SRC. Data contained in the final report will go through GHD's final QA/QC process, including review by a GHD Certified Industrial Hygienist (CIH).



Sources: 2015 TIGER/Line Shapefiles, prepared by the U.S. Census Bureau, 2015; U.S. Geological Survey, National Geospatial Technical Operations Center - National Elevation Dataset, 2015; Imagery © Google.

0250500750

Feet

Coordinate System:
NAD 1983 HARN StatePlane
Wisconsin North FIPS 4801 Feet

N

Legend

Perimeter Monitoring Locations

COIs Below Community Action Levels

COIs Above Community Action Levels

Hot Zone Perimeter

GHD

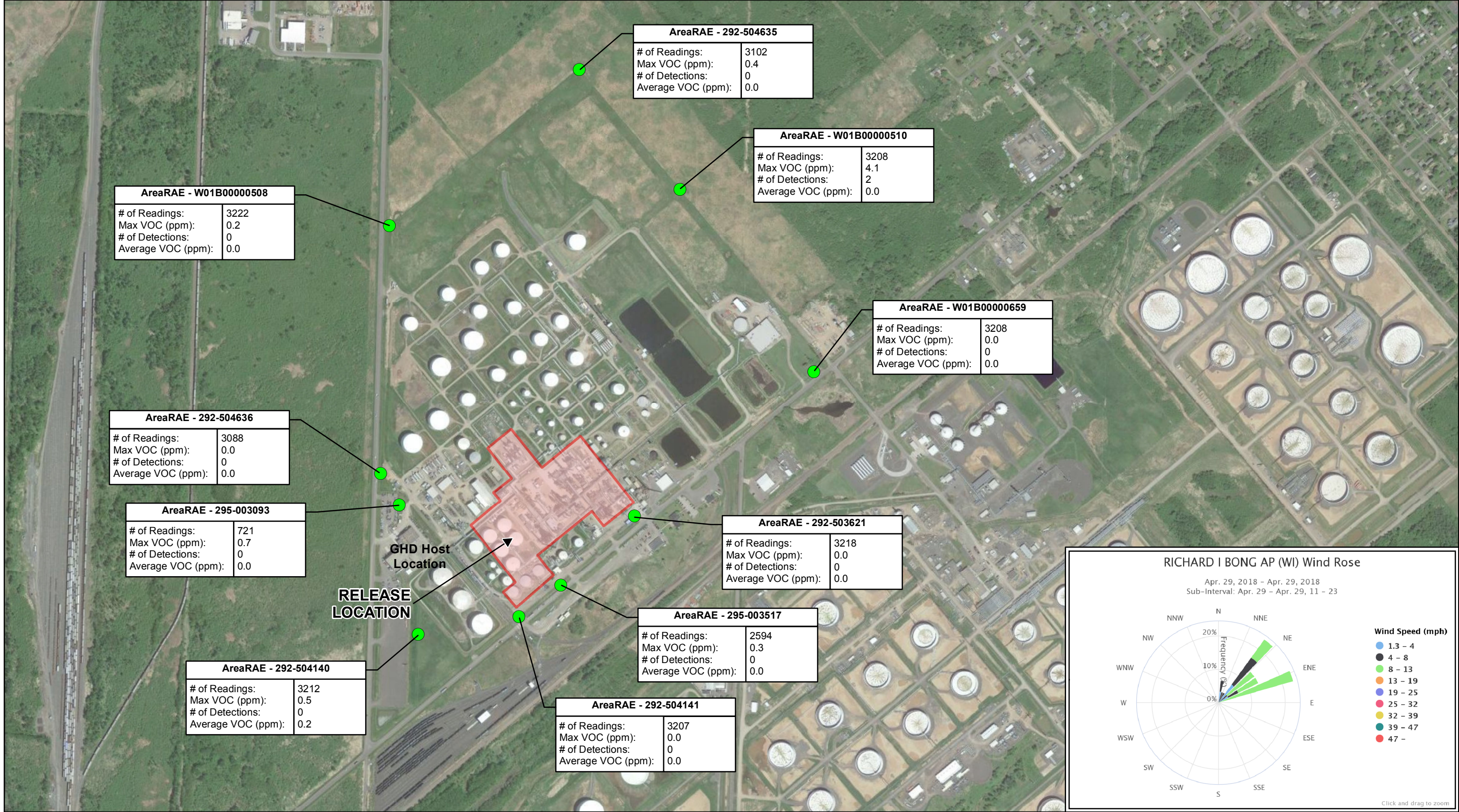
HUSKY ENERGY – SUPERIOR REFINERY FIRE
SUPERIOR, WISCONSIN

SUMMARY OF PERIMETER ZONE AIR MONITORING RESULTS
11:30 APRIL 29 TO 23:30 APRIL 29, 2018

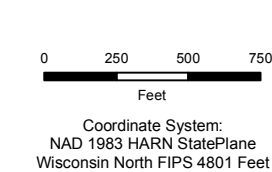
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Apr 30, 2018

FIGURE 1

GIS File: Q:\GIS\PROJECTS\11156000s\11156937\Layouts\PRES007.11156937-00(PRES007)GIS-WA001.mxd



Sources: 2015 TIGER/Line Shapefiles, prepared by the U.S. Census Bureau, 2015; U.S. Geological Survey, National Geospatial Technical Operations Center - National Elevation Dataset, 2015; Imagery © Google.



Legend

Perimeter Monitoring Locations

- COIs Below Community Action Levels
- COIs Above Community Action Levels
- Hot Zone Perimeter

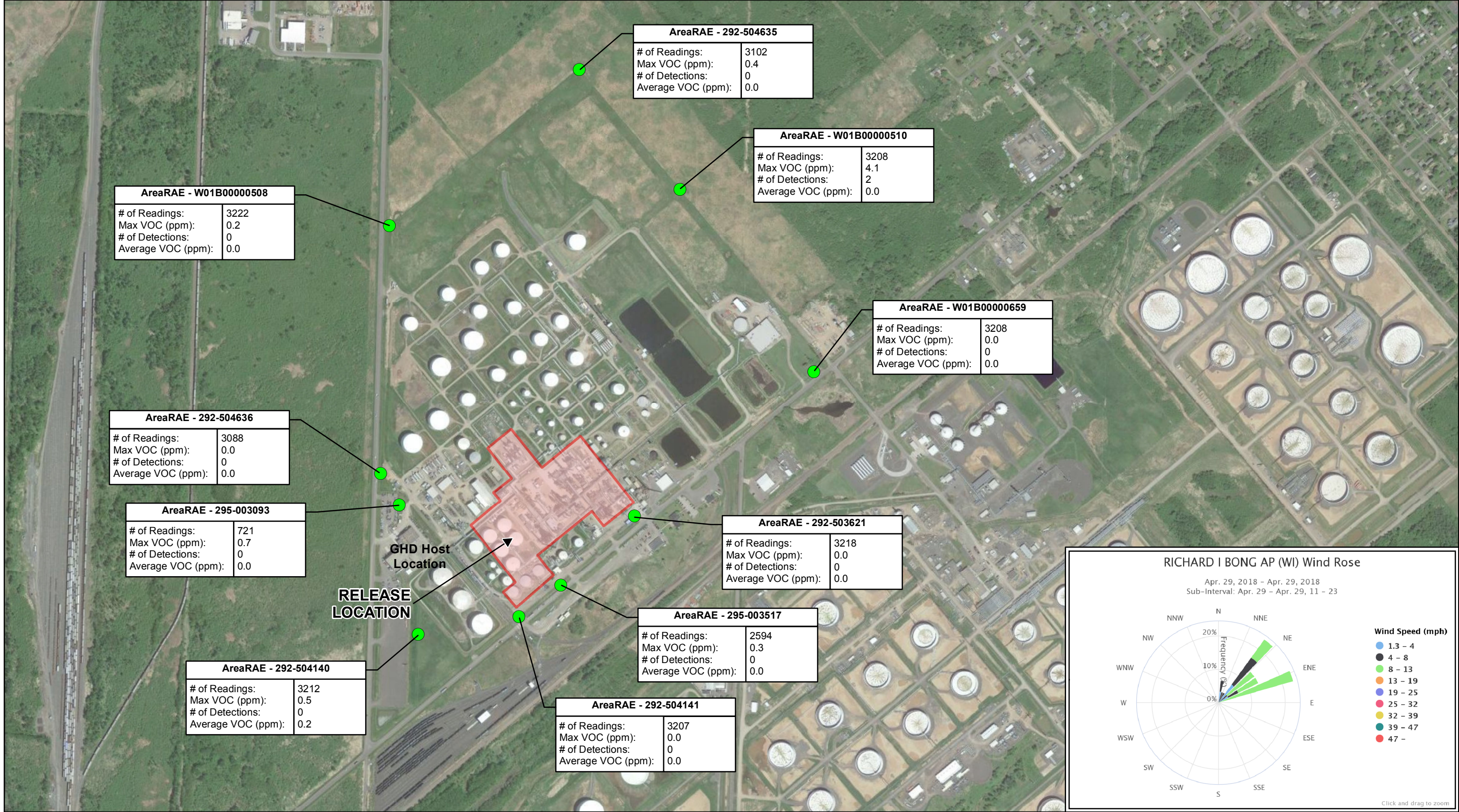


HUSKY ENERGY – SUPERIOR REFINERY FIRE
SUPERIOR, WISCONSIN

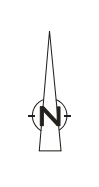
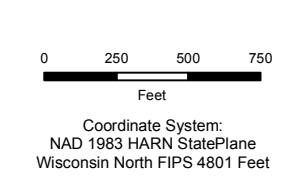
PERIMETER ZONE AIR MONITORING RESULTS - VOCs (PPM)
11:30 APRIL 29 TO 23:30 APRIL 29, 2018

11156937-00
Apr 30, 2018

FIGURE 2



Sources: 2015 TIGER/Line Shapefiles, prepared by the U.S. Census Bureau, 2015; U.S. Geological Survey, National Geospatial Technical Operations Center - National Elevation Dataset, 2015; Imagery © Google.



- Legend**
- Perimeter Monitoring Locations**
- COIs Below Community Action Levels
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 - Hot Zone Perimeter



HUSKY ENERGY – SUPERIOR REFINERY FIRE
SUPERIOR, WISCONSIN

PERIMETER ZONE AIR MONITORING RESULTS - VOCS (PPM)
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FIGURE 2